Claims:

1. A process for the pH control of a silver nitrate solution used for the selective recovery of olefins from a mixture of gases, said process comprising:

a. bringing a gaseous mixture comprising olefins and hydrogen into contact with an aqueous silver nitrate solution, whereby the olefins are absorbed into the silver nitrate solution as a complex;

b. separating the solution comprising the complexed olefins from the non-absorbed gases;

c. de-pressurising and heating the olefin complex solution from (b) so as to release the olefins from the complex and regenerate the silver nitrate solution;

d. passing said regenerated silver nitrate solution through a bed comprising silver oxide so as to maintain the pH value of the silver nitrate between 3 and 6; and

e. recycling the silver nitrate solution regenerated in (d) to step (a).

2. A process as claimed in claim 1, wherein the silver oxide is used in granular form.

3. A process as claimed in claim 2, wherein the silver oxide is used in granular form in the absence of a binding agent.

4. A process as claimed in claim 1, wherein the silver oxide is used in powder form.

5. A process as claimed in claim 1, wherein the silver oxide is supported on a zeolite, a clay or an alumina.

6. A process as claimed in any preceding claim, wherein the silver nitrate solution employed in step a) has a concentration of 1 to 10 M.

7. A process as claimed in any preceding claim, wherein an excess of silver oxide is employed in step d).

8. A process as claimed in any preceding claim, which comprises the step of f)

passing the silver nitrate solution regenerated in step c) through a filtering aid, which is capable of retaining any particulate silver present in said regenerated silver nitrate solution.

9. A process as claimed in claim 8, wherein any particulate silver retained by said filtering aid is recovered and contacted with nitric acid to produce fresh silver nitrate.

10. A process as claimed in claim 8 or 9 wherein step f) is carried out prior to step d).

11. A process as claimed in any preceding claim, wherein acetylenic compounds are removed from the gaseous mixture comprising olefins and hydrogen

12. A process as claimed in claim 11, wherein said acetylenic compounds are removed from said gaseous mixture before said gaseous mixture is contacted with silver nitrate solution in step a).

13. A process as claimed in claim 11 or 12, wherein said acetylenic compounds are removed by passing the gaseous mixture using means capable of forming a complex with the acetylenic compounds in the gaseous mixture.

14. A process as claimed in claim 13 wherein said means capable of forming a complex with the acetylenic compounds in the gaseous mixture is in the form of a guard bed comprising a silver-ion exchanged zeolite.

15. A process as claimed in any of claims 1 to 10, which comprises:

monitoring the amount of acetylide compounds in the olefin complex solution formed in step a), and

removing at least a portion of said acetylide compounds from said solution before the amount of acetylide compounds is found to exceed a threshold level.

16. A process as claimed in any preceding claim, which is carried out for the selective recovery of a ethylene and/or propylene from a petrochemical stream which has been subjected to steam cracking.

17. A process as claimed in any preceding claim, wherein the pH of the silver nitrate is maintained between 4 and 5.5.